this study was to understand the effectiveness of safety needles in a workshop, and analyzes the differences of using safety needle before and after the on-the-spot demonstration course.
Methods: This study used cross-sectional methods to collect data from 39 participants in an understanding safety needles workshop held in October 2013. Data included participant's characteristics, past needlestick injury experience, course satisfaction, and used paired t-test to compare the differences of using safety needle before and after the course.
Results: The participants are all female. The average age is 23.26±2.91 years old. The participants' satisfaction in self-evaluation grades is 94.95±5.13 points. After using safety needles in workshop, a statistically significant difference ($p \leqq .001$) was found in participants' recognition at the items of "feel safety needle can effectively avoid the needlestick injury", "safety needles can avoid touching the patient's blood", "participant can clearly understand the clinical procedures and precautions of safety needles".
Conclusions: This workshop can help nurses to establish good working habits, enhance knowledge of needlestick prevention, implement needlestick prevention behavior, and reduce the probability of occurrence of needlesticks, so as to establish a safe working environment. Participants learned a lot and recommended us to arrange the practice of safety needles in new entry's training.

PS 2-444

INTEGRATING DIFFERENT MEASURES TO CONTAIN *LEGIONELLA* IN THE HEALTHCARE ASSOCIATED ENVIRONMENT: A SINGLE INSTITUTE'S EXPERIENCE

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Purpose: We described the successful experience of using different measures of containing *Legionella* in our hospital.
Methods: We adopted recommendations from Centers for Disease Control and performed water supply surveillance twice each year. The sampled water was sent for screening for *Legionella* including isolation and serotyping.
Results: Our hospital divided into two divisions, a 600-bed 12- to 30-year-old building complex and a 150-bed 6-year-old green building. The old division was equipped with copper-silver alloy at the upstream of water supply system. The new division saved energy using a heat pump with a peaked temperature of no more than 60°C. We performed water surveillance from the reservoir, cooling tower and the pipelines ends in the wards of immunocompromised patients. The water from the new division was positive for *Legionella* serotype 2—14 (pipeline ends) in May 2013 and serotype 1 (cooling tower) in November 2013. After failing to contain the bacteria by heating, avoiding still water and disinfection of the pipeline ends, we set up a chlorine dioxide pump at the source and achieved continued containment. The water from the old division was positive for *Legionella* serotype 1 (pipeline ends) in September 2013. We successfully contained the bacteria by shock hyperchlorination (sodium hypochlorite 50 ppm) and disinfection of the pipeline ends. There was no confirmed case of Legionnaires' disease in our hospital.
Conclusions: We integrated different measures to contain *Legionella* in our hospital with continued success.

PS 2-445

EFFECTIVENESS OF INTERVENTIONS TO HEALTHCARE WORKER HAND HYGIENE COMPLIANCE AT TWO DELIVERY SUITES OF HUNG VUONG HOSPITAL, VIETNAM

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Purpose: During five years of surveillance, the hand hygiene compliance (HHC) of health care workers (HCWs) increases from 9% to 53% and remains stable at 53% during the last two years. This research compares the HHC rates before and after implementating of interventions at two delivery suites of Hung Vuong hospital aimed to evaluate the effectiveness of interventions.
Methods: A quasi-experimental study was performed from Feburary 2014 to August 2014 at two Hung Vuong hospital delivery suites (A and B). Interventions at delivery suite B included hand hygiene promotion included distribution of posters and supplements, a hand hygiene contest, observation and feedback HHC twice times at before and after intervention phase. Interventions at delivery suite A included hand hygiene promotion and practical training classes of hand hygiene, observation and performance feedback HHC every month. The HHC was directly observed with WHO tool.
Results: 2,114 opportunities were observed before and after interventions at two delivery suites. 76 HCWs (85%) of delivery suite A attended traning classes. After intervention, there was significant improvement of HHC at delivery suite A from 48.6% to 67.9% (OR=2.2; CI 95%: 1.8 — 2.8; $p<0.01$). Delivery suites B had significant decrease of hand hygiene compliance from 42.2% to 30.5% (OR=0.6; CI 95%: 0.5 — 0.8; $p<0.01$). At delivery suite A, only midwives compliance had significant increase ($p<0.01$) before and after intervention, between two delivery suites. The compliance rate of five hand hygiene indications at delivery suite A was also higher than delivery suite B ($p<0.01$).
Conclusion: Hand hygiene promotion strategy is not enough to improve and maintain HCWs' hand hygiene compliance rate. Combination with specific interventions such as training practice skill by focus groups and audit with feedback frequently will have positive effectiveness on HHC.

PS 2-446

NEEDLESTICK AND SAFETY NEEDLE PROMOTION EFFECT ANALYSIS IN A MEDICAL CENTER

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Purpose: Needlestick is the most common medical incidents of healthcare workers, and is the primary cause of blood-borne or body fluid disease transmission. This study was aimed to analyze the cases and reasons of needle stick after the promotion of safety needles, as well as to provide information for future promotion.
Methods: The research is retrospective. We collected the hospital's needlestick cases from 2010-2013, and compared the cases, reasons and sharps before and after the promotion of safety needles. To evaluate the effect of safety needles usage, glass-made objects and surgical equipment were excluded.
Results: In 2010-2013, the needlestick was 26.3%-46.8% in all occupational accidents of the hospital. When glass-made objects and surgical equipment were excluded, the needlestick cases before (2010-2011) and after (2012-2013) promotion was 66 and 49. For sharps, disposable syringe, I.V. catheter and insulin syringe were top causes of injuries before the promotion. In comparison with the cases after the promotion, the disposable syringe and I.V. catheter dropped from 36 to 23 and 10 to 4 respectively. However, the insulin syringe increased from 10 to 14. As for the reason that caused needlestick, needle recap and untimely disposable were the main reasons, and the before and after cases was 15 to 8 and 10 to 6, respectively.
Conclusions: According to the EPInet, the average of needlestick to healthcare workers was 2.1 to 4.7 times every year in 2004 to 2013. Considering the cost, the hospital promoted the safety needle stepwisely. It was estimated that 25.8% of needlestick cases reduction after the promotion, and because of the usage of safety needle, the prevention of needle recap, there was about 57.1% of needlestick cases be prevented. Nevertheless, hypodermic needlestick cases were largely increased because of the penfill insulin injection. Improved and reasonable price for safety needle were expected to make better equipment for the healthcare workers.

PS 2-447

ANTIBIOTIC PROPHYLAXIS FOR URINARY TRACT INFECTIONS AFTER REMOVAL OF URINARY CATHETER: META-ANALYSIS

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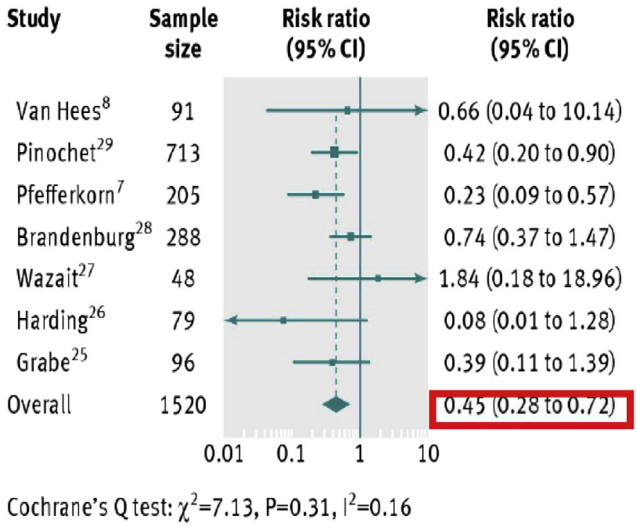
Purpose & aims: Catheterization of the urinary tract is associated with an increased risk of bacteriuria and symptomatic urinary tract infection, the risk being associated with the duration of catheterization. Surgical experts advocate discontinuation of catheterization as early as 24-48 hours postoperatively. Bacteriuria in a patient with a catheter can persist after the catheter is removed and can develop into a symptomatic urinary tract infection. The purpose of the study is to clarify whether antibiotic prophylaxis at the

time of urinary catheter removal confers a benefit in terms of preventing subsequent symptomatic urinary tract infections.
Methods: A systematic search of English language studies was performed. I typed "urinary tract infections and Catheterization) systematic [sb]" as keywords for PubMed .And , I combined "urinary catheter OR urinary catheter [Mesh]"AND"antibiotic prophylaxis"AND"urinary tract infection OR urinary tract infection [Mesh]"as keywords for Cochrane library. Finally, I review the article about antibiotic prophylaxis for urinary tract infections after removal of urinary catheter: A meta-analysis.



Results: The meta-analysis indicated an overall reduction with a risk ratio of 0.45[95% CI 0.28 to 0.72] .And , The number need to treat to prevent one symptomatic urinary tract infection was=17[95%CI 12-30],with low heterogeneity (I2=16%).
Conclusion: It indicates an overall benefit of antibiotic prophylaxis at the time of removal of a urinary catheter to prevent subsequent urinary tract infections but it may increases antimicrobial resistance, healthcare costs for antibiotics, and the potential for side effects.

Table I Summary of studies on effect of antibiotic prophylaxis for urinary meta-analysis (PS 2-447).

				Median duration of catheterization (days)			No of cases*		
Author	**Year published**	**Design**	**Patients analyzed**	**Antibiotics**	**Control**	**Antibiotic used**	**Antibiotic**	**Control**	**Observation period**
Van Hoes*	2011	Randomized. placebo	91 general surgery	5/6	4.5	Ciprofloxacin (n-31) or TMP/SMX (n-24) x1 dose before removal	1/55	1/36	2 Weeks
Pinocher[26]	2010	Prospective comparative (patients of surgeon A vs. surgeon B)	713 radical prostatectomy	11	7	Ciprofloxacin (3 day course starting day before removal)	8/261	33/452	6 weeks
Pfefforkom[7]	2009	Randomized. no placebo	205 abdominal surgery	7	6.5	TMP/SMX (3 doses, first before removal) or ciprofloxacin	5/103	22/102	4 ± 2days after catheter removal
Brandenburg[28]	2006	Randomized. placebo	288 general surgical	3	33	Nitrofurantoin (2 doses, first before removal)	12/137	18/151	4 weeks
Wazait[27]	2004	Randomized, placebo	48 on medical and surgical wards, excluding genitourinary surgery	3.8	3.6	Ciprofloxacin (4 doses, two daily, first before removal)	2/25	1/23	2 Weeks
Harding[26]	1991	Randomized. no placebo	79 women on medical and Surgical wards, with bacteriuria	2.	2	TMP/SMX(single dose)	0/37	7/42	4 weeks (prophylaxis) v 2 weeks (no prophylaxis)
Grabo[25]	1&S4	Randomized. no placebo	96 transurethral prostatectomy	1.9	1.8	Cefotaxime (3 doses, two daily, first before removal)	3/47	8/49	1 week

PS 2-448

IS ANTIFUNGAL THERAPY A PREDICTIVE FACTOR OF MORTALITY DUE TO POLYMICROBIAL PERITONITIS WITH *CANDIDA* ISOLATION IN PERITONEAL FLUID IN PATIENTS WITH COMMUNITY-ACQUIRED PERFORATED PEPTIC ULCER?

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Purpose: *Candida* peritonitis (CP) is generally considered to be a severe disease, but the impact of antifungal therapy on outcome in patients with community-acquired peptic ulcer perforation (PPU) remains unknown. The predictive factors of mortality due to CP can be determined by study of a population of patients with CP. We emphasize the relationship of antifungal therapy and the risk of mortality in this population.
Methods: This retrospective study included adult patients diagnosed as PPU with peritoneal fluid culture positive for *Candida* spp. in Kaohsiung Chang Gung Memorial Hospital (KCGMH) between January 2008 and December 2012. These enrolled patients were divided as two groups, with and without appropriate antifungal agents to evaluate the outcomes. To reduce the effect of diverse characteristics among two groups for outcome study, a propensity score-based matching was implemented.
Results: A total of 133 patients were enrolled, of whom 57 (42.5%) received antifungal therapy. Among them, 80 patients were matched (1:1) on the basis of the propensity score and APACHE II score in each group. No significant difference was found in all baseline characteristics, clinical conditions, and laboratory data between these two groups. The Kaplan-Meier survival analysis revealed that the individuals who received antifungal therapy had higher survival probability on the post-operation 14 and 30 day analysis, but there were no statistical significances. Total 16 patients (12%) were dead in 30 days post-operation. In the multivariate analysis, patients with hypotension (OR, 5.6; 95% CI, 1.9−16.5; p=.002) and higher APACHE II score (OR, 9.5; 95% CI, 1.1−80.7; p=.04) were independently associated with 30-day mortality.